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ILLICIT DRUG TRAFFIC AND SUPPLY, INCLUDING REPORTS FROM SUBSIDIARY BODIES AND EVALUATION OF THEIR ACTIVITIES

Illicit drug trafficking

Report of the Secretariat

Summary

The present report sets out recent developments in the field of international illicit drug trafficking, with details of production, patterns, volumes of trafficking and seizures of drugs. Tentative estimates are made of the value of global trade in drugs, and conclusions based on an analysis of the data are presented.

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I. THE STATISTICAL APPROACH

1. The purpose of the present report is to provide an overview of trends in international illicit drug trafficking with particular reference to cocaine, the opiates (opium and heroin), psychotropic substances and cannabis. Trafficking in precursors is not dealt with because of the complexity of the product ranges and the inadequacy of information.

2. The focus is on both developments in the 1990s and the situation that is emerging for the rest of the decade. The aim is to provide a framework within which a number of key elements in international work on drug issues can be examined. Some estimates are given, however tentative they may be, of the current volume and value of international illicit trafficking in cocaine and the opiates. Such estimates can establish a basis for calculating the likely costs of law enforcement measures on a larger scale than has hitherto been attempted, set possible limits in estimating the size of money-laundering operations, and provide a platform from which more reliable estimates of both the extent and directions of illicit trafficking may be ascertained.

3. The usual thrust of statistical presentations with regard to trafficking is to concentrate on the seizure data collected by the United Nations International Drug Control Programme (UNDCP), the International Criminal Police Organization (ICPO/Interpol) and the World Customs Organization (WCO) (the comprehensive data-matching exercise among the three bodies is scheduled for completion in the first half of 1995). The seizure data, however, offer only a limited guide as to the possible extent and directions of international illicit trafficking. The limitation is due both to problems in reporting and to inherent constraints in attempting to extrapolate trafficking patterns from captured goods.

4. The reporting difficulties are twofold. First, seizure data comprise all reported cases, whether or not the products seized were apparently intended for export to another country or for internal consumption in the country where the seizure was made. On some occasions, but by no means all, information collected in the course of the seizure may permit the final destination to be identified. Secondly, the reports received are frequently lacking in country coverage (for example, not much more than one half of the countries to which the UNDCP annual reports questionnaire is sent actually respond to it), may well be weak with regard to coverage inside the countries that do report, and are often based on inadequate information for the individual cases.

5. The problems inherent in moving from seizure figures to overall trafficking figures can be readily summarized. If a fixed relationship of seizures to trafficking in percentage terms is assumed (that is, a fixed rate of interdiction), then the application of the same quotient for a number of years implies that there has been no alteration in the relative effectiveness of the operations of law enforcement agencies. If, on the other hand, the percentage of seizures to trafficking is thought to vary from year to year, then some cogent reasons for believing the effectiveness of law enforcement operations to have changed must be put forward. The use of any percentage figure itself depends on the sources from which the figure is obtained. Since making a seizure often involves capturing not only the narcotics but also the traffickers, the information obtained through interrogating the latter may be a good means of judging how big the actual volume of trafficking is likely to be. In other words, the interdiction rates quoted by law enforcement agencies may depend on the reliability of data obtained through those channels. It must further be kept in mind that for several countries, assessments of the likely efficacy of seizure actions may not be available. In such cases, probably the best that can be done is to make some assumptions derived from the practice of similar law enforcement operations elsewhere.

6. Although for the main drugs the relationship of seizures to potential production is not often examined, it is worth noting that there has been a small shift in ratios during the current decade. The figures used for the following calculations are based on UNDCP database information on seizures, and

official estimates of potential production established in the United States of America. In the case of cocaine, the rate of seizures relative to potential production on a global basis rose from 33.2 per cent in 1990 to 34.5 per cent in 1993; for heroin the corresponding change was from 8.2 per cent at the beginning of the decade to 8.5 per cent in 1993. The breakdown of seizure figures according to location of the seizure reveals a highly distinctive pattern. For cocaine, approximately 42 per cent of worldwide seizures in 1993 were effected in the United States, whereas for heroin only 5 per cent of global seizures were made in that country. Such data suggest that not only is the rate of international seizure for cocaine per unit of production more than four times the rate for heroin, but also that more domestic consumption of the latter appears to take place. Those figures should be more fully investigated in future.

7. In the report some very tentative calculations are made regarding the likely size of international illicit trafficking in cocaine and the opiates, on the basis of the seizure data of countries with the heaviest traffic and of the assessments they make of the coverage achieved by their law enforcement operations. For cocaine, the figures must be estimated from the import side. Scant information exists on seizures of cocaine as it leaves the exporting countries. All calculations therefore have to be made on the basis of reports provided by the countries, mainly members of the Organization for Economic Cooperation and Development (OECD), in which cocaine is sold. Since there appears to be little domestic consumption of cocaine in Latin America, and few stocks of cocaine are accumulated there, the equation of production to exports seems to be a good approximation.

8. In the case of heroin, the calculations are more complicated. There are already several major producing and exporting locations in South-East and South-West Asia, along with a growing number of additional sources in the member states of the Commonwealth of Independent States in central Asia and indeed in some parts of Latin America. Some of those locations have substantial domestic consumption of heroin, meaning that it would be unsatisfactory to treat production figures as a good proxy for exports. Furthermore, reported seizures show that major captures are made on the borders of some of the countries, that is, at the point of export. For heroin, therefore, the picture of likely international trafficking has to be based on seizures at both import and export points.

9. The reliance on seizure statistics as an initial basis for tentative calculations regarding the volume of international illicit trafficking is mainly due to the fact that other methods on which UNDCP is currently working are not yet sufficiently developed. Those methods in essence derive from computations of production and consumption in the main producer and consumer countries and from the use of differences between output and domestic sales to estimate available export volumes and import quantities. Ideally, calculations based on one method should be contrasted with estimates made from a different angle in order to identify discrepancies and possible omissions. More comprehensive information of that kind will be given in subsequent UNDCP reports.

10. The comments made so far have dealt with trafficking volumes. Matters become appreciably more difficult if the aim is to estimate the likely value of international illicit trafficking. Price data are known to vary enormously both within and across countries, to escalate sharply the closer the product comes to the final consumer, to alter considerably according to the nature of product differentiation, and to include markedly different figures depending on the quantities involved in transactions. Broad orders of magnitude are given in the present report, with the emphasis on possible values at the point of import. Those values are closer to wholesale prices rather than to retail estimates in the importing countries.

11. Developments with regard to cocaine are examined in section II below. There is a brief review of production, followed by a consideration of changes in trafficking routes, and then by the presentation of estimates for volume and value of trafficking. The same approach is used in section III to discuss the opiates. Section IV provides a brief overview of the position with regard to cannabis, but does not

give any estimates for aggregate world trafficking. Section V deals with psychotropic substances, and the main findings of the report are presented in section VI.

II. COCAINE

A. Production

12. Illicit exports of cocaine originate almost entirely from Colombia, with small quantities also being processed in Bolivia and Peru (see table 1). That concentration of production has remained stable in recent years. Processing laboratories can be established at low cost, and are readily erected and dismantled. They operate at varying scales of production, with apparently few unit cost savings from larger outputs. Intermediate inputs and precursor chemicals are obtained both from national sources and through imports. Some of the imports come from neighbouring countries, but significant supplies are also brought in from further afield.

13. The average purity of the cocaine exported appears to be above 80 per cent when the product reaches wholesale markets in the the United States and Canada, and above 75 per cent for many wholesale markets in Europe. In the latter case, however, information given in the annual reports questionnaire suggests that purity levels may be appreciably smaller in such important markets as Germany and France. At the retail level in those OECD countries, the purity ratios tend to be markedly less than at wholesale levels.

14. Control over output and exports is at present concentrated primarily in the Cali cartel. The breakup of the Medellín cartel following the death of Pablo Escobar in December 1993 appears to have led to the creation of a number of smaller groups involved in cocaine exports. Though it is difficult to estimate with much precision the market shares of the various groups, press reports in Colombia as well as information gleaned from official sources suggest that the Cali cartel may dominate about 80 per cent of the trafficking.

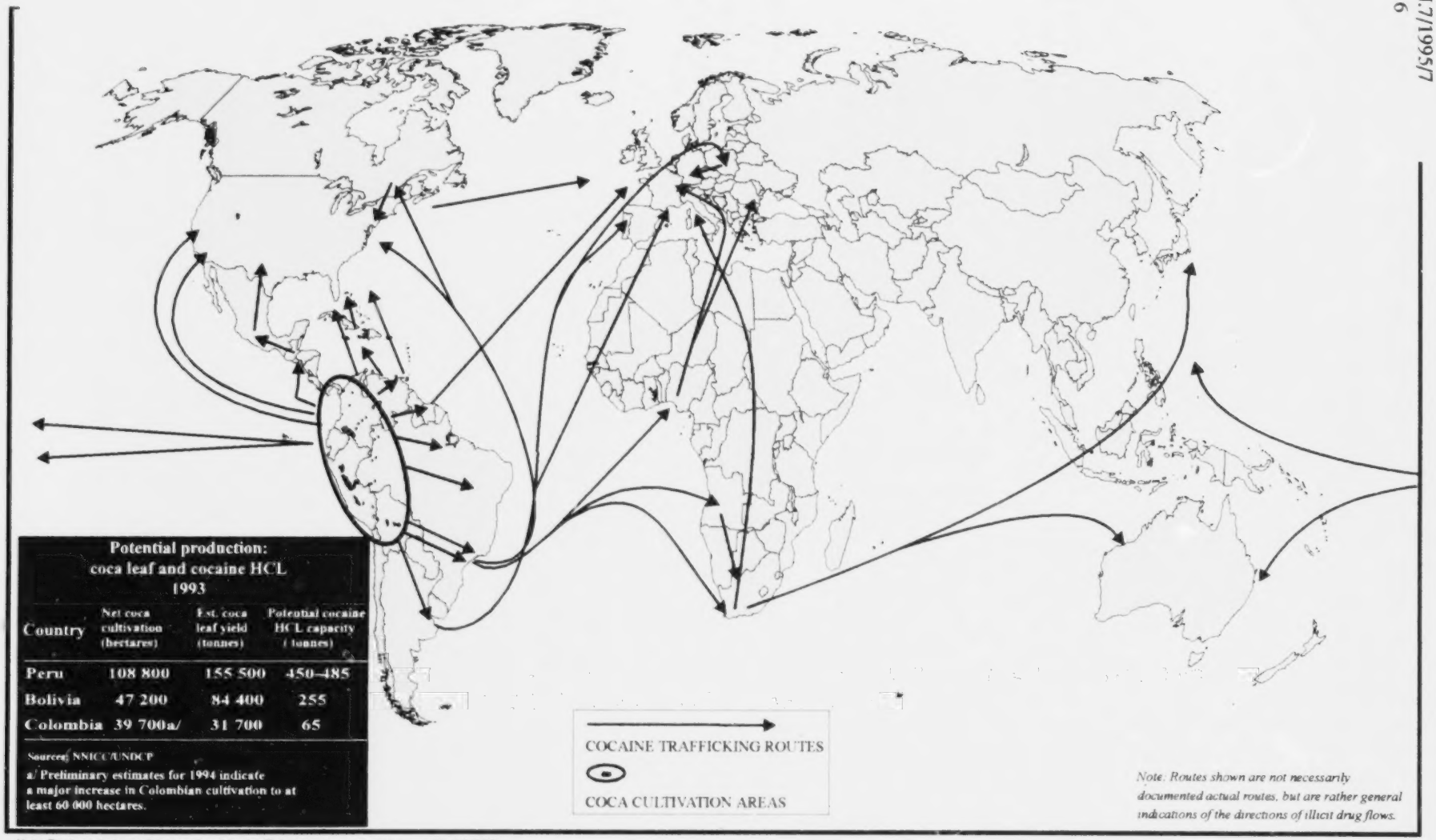
15. The organization of output and export is characterized by strong vertical integration. In other words, the agents who arrange for processing within Colombia usually retain a grip over the marketing of the product at the wholesale, and sometimes even at the retail, level.

16. The escalation in product value from the point of processing to points of import in OECD countries is very marked. From information given in the annual reports questionnaire, it can be inferred that the ratio of the import value in the United States to the export value in Colombia is of the order of 10 to 1; the equivalent ratio for entry into western European markets is of the order of 30 to 1.

17. The attempts to control cocaine production within the Andean countries have had only limited success. Although laboratories for the manufacture of coca paste have been frequently destroyed by law enforcement efforts in the region, the Office of International Narcotics Matters of the Department of State of the United States, in its "International narcotics control strategy report", reckoned the available capacity for producing cocaine hydrochloride to be approximately 750 tonnes as of 1993 (see figure I).

18. Cocaine producers and traffickers are, in principle, subject to three main kinds of risk in their operations. The first risk relates to competition among them of a kind that could cause losses in their control over exports. Given the current structure of the market, that risk does not appear to be significant. The second risk relates to interdiction, that is, seizure of the product. It seems that such risks are not particularly great, and certainly have very limited impact on the overall profits from production and trafficking, and indeed on the market prices in consuming countries. The third risk is

Figure I. Coca and cocaine: major cultivation areas and trafficking routes


Potential production:
coca leaf and cocaine HCL
1993
Country
Net coca cultivation (hectares)
Est. coca leaf yield (tonnes)
Potential cocaine HCL capacity (tonnes)
Peru 108 800 155 500 450–485
Bolivia 47 200 84 400 255
Colombia 39 700a/ 31 700 65
Source: UNICC/UNDCP
a/ Preliminary estimates for 1994 indicate a major increase in Colombian cultivation to at least 60 000 hectares.
COCAINE TRAFFICKING ROUTES
COCA CULTIVATION AREAS
Note: Routes shown are not necessarily documented actual routes, but are rather general indications of the directions of illicit drug flows.

Note: The boundaries on this map do not imply official acceptance or endorsement by UNDCP

that of extradition, which has arguably had the main impact on cocaine trafficking in the present decade. Much of the violence associated with the actions of the Medellín cartel was generated by the fear that its leaders would be sent abroad for arraignment and criminal trial. That violence, in turn, engendered the circumstances that gravely weakened the cartel. Although the Government of Colombia passed a law in 1991 which outlawed extradition, the fear of extradition may still influence the behaviour of the Cali cartel.

Table 1. Main sources of cocaine production, 1990-1993

Country and total	Net coca cultivation (hectares)	Estimated coca leaf yield (tonnes)	Potential cocaine hcl capacity (tonnes)	Average coca leaf yield per hectare (kilograms)
Bolivia				
1990	50 300	76 800	235	1 527
1991	47 900	78 400	235	1 637
1992	45 500	80 300	245	1 765
1993	47 200	84 400	255	1 788
Colombia				
1990	40 100	32 100	65	800
1991	37 500	30 000	60	800
1992	37 100	29 600	60	798
1993	39 700	31 700	65	798
Peru				
1990	121 300	196 900	570-610	1 623
1991	120 800	222 700	645-690	1 844
1992	129 100	223 900	650-695	1 734
1993	108 800	155 500	450-485	1 429
Total production				
1990	-	305 800	870-910	-
1991	-	331 100	940-985	-
1992	-	333 800	955-1 000	-
1993	-	271 600	770-805	-

Sources: Bureau of International Narcotics Matters, International Narcotics Control Strategy Report (Washington, D.C., Department of State, 1993 and 1994).

B. Patterns of trafficking

19. Figure I illustrates the array of main trafficking routes for cocaine regularly used in the mid-1990s. The figure is intended to provide orientation only, and two points should be borne in mind when interpreting the patterns shown. First, the arrows reflect routes along which the volume and frequency of trafficking, not to mention the value in import markets, can vary greatly from one to another - in that sense, the routes are not drawn to scale. Secondly, the use of routes is probably additive over time, that is, when a new route is introduced, it does not replace an existing one, but rather adds another option. The steady creation of ever more possibilities for switching routes complicates law enforcement in import markets to the extent that a fresh route brings with it a new entry point.

20. Although still imprecise, another way of looking at the geographical extent of trafficking is to check the number of locations in which internationally significant seizures have occurred (such a seizure, for cocaine, refers to an amount equal to or in excess of 0.1 kilogram, provided that either the country of origin is foreign or the country of destination differs from the place of seizure). UNDCP obtains information on significant seizures from a certain number of the countries that respond to the annual reports questionnaire. In 1990, 26 countries gave individual seizure information, and in 1993 the number had risen to 32. From that database, a rough approximation can be obtained regarding places of entry. The numbers are only approximate, because certain key importing countries do not always separately specify the places of entry.

21. The information for 1990 shows that, for the 26 reporting countries, 181 entry points were identified. The corresponding figure of 384 for 1993 shows an increase of greater than 100 per cent. A significant share of the rise is due to the lack of specification of entry points by two key countries in 1993. The data given in the tables in the present report (especially tables 3 and 4) indicate that, in both years, 60 countries responded to the annual reports questionnaire, but did not provide the individual seizure data.

22. By definition, at least one entry point must exist for each country, and the likelihood is that the number of such points is greater. If, in addition, it is remembered that some countries giving individual seizure data do not spell out the various entry points, then it is reasonable to argue that the aggregate global figures must be appreciably higher than the 181 and 384 cited above. A more plausible estimate would be roughly 300 entry points in 1990, rising to 500 in 1993. Those figures give a better picture of the real extent of law enforcement tasks in importing countries.

23. The United States remains the principal market for cocaine. The product is transported there via diverse routes, the majority of which appear to go through Mexico and the Caribbean, though there are some which seem to take Colombia itself, and to an increasing degree Venezuela, as the platform for direct export to the west coast of the United States. There is some evidence that cocaine is transported to Argentina and southern Brazil, from where it is sent directly to points on the eastern seaboard of the United States.

24. The preferred transport modes depend on the route chosen, with recourse to private aircraft, lorries and cars for overland movement and boats ranging from simple fishing vessels to container ships. The use of containerized cargo as a method of handling bulk shipments appears to be increasing, a development that is the focus of growing cooperative efforts by law enforcement agencies. Small quantities of cocaine continue to be trafficked by individual couriers travelling by air.

25. The traffic to Europe appears to be directed strongly towards Portugal and especially Spain. Reports from law enforcement agencies suggest that about 75 per cent of total exports to Europe go through those two countries.

26. A wide array of routes is currently utilized for such traffic. Some Latin American countries, above all Brazil, are taken as the platforms for transatlantic trafficking, and there is some evidence that Aruba, Suriname, Jamaica and other Caribbean islands are treated as transit points.

27. Markets outside the large OECD countries (with the exception of Japan), continue to be relatively small. Nevertheless, cocaine trafficking has been expanding in two important and fairly new directions. Eastern Europe and the Baltic States have emerged as significant transit markets, with supplies going to them through, among other channels, ports in Poland. Cocaine seizures in Poland during 1993 were almost at the level of seizures reported in Portugal, which is a much more established platform. Africa, and in particular the major States in western and southern parts of the continent, have become areas of growing interest to cocaine traffickers. Using Brazil as a platform, there has been significant trafficking into Nigeria, with subsequent re-export from that country to Europe. South Africa is being served through Argentina and Chile, and seizures in that country in 1993 were, in Africa, second only to those for Nigeria. Indeed, cocaine seizures in Africa as a whole were 200 per cent greater in 1993 than in 1992.

28. Although trafficking oriented towards Europe and North America accounts for the overwhelming part of the total, there is fragmentary evidence that cocaine sales in some other parts of the world may be starting to grow. Some of those regions are also being used as transit stations for traffic to OECD markets.

29. In the Near and Middle East, Lebanon appears to occupy an important position. There are indications that cocaine processing takes place in the country, and that it has become the pivot for distribution within the Middle East as a whole. The country is also used as a transit point for sales to Europe. Although evidence remains limited, there appear to be some strengthening of links between South American drug cartels and Lebanese crime syndicates.

30. The marketing of cocaine in the Pacific basin is still fairly restricted. Nevertheless, in 1993 there were appreciable increases in cocaine seizures in Australia, Canada, Japan and Hong Kong. The first arrests ever made for cocaine trafficking in the Republic of Korea were reported.

C. Seizures and the volume of trafficking

31. Table 2 provides a summary of the figures on reported global seizures of cocaine, heroin and cannabis for the period from 1975 to 1993. The second column of table 2 highlights the data for cocaine. The current decade has seen reported seizures on a scale well in excess of observed patterns in the second half of the 1980s. Nevertheless, whereas 1991 seizures were practically double the average annual rate for the period from 1985 to 1989, since then the seizure rate has dropped by close to 20 per cent.

32. Table 3 indicates the number of countries for which seizures of the three principal narcotic drugs were reported in 1990 and 1993. The small increase in the aggregate number disguises significant variations among regions, for which data are presented in table 4. Perhaps not surprisingly, given the political divisions in Europe during the decade, there was a 50 per cent increase in the number of European countries reporting seizures from 1990 to 1993. An increase was also observed for Africa, with the a partially offsetting fall in America.

33. Whereas tables 3 and 4 show numbers of countries and regions, table 5 highlights the changes in seizures by weight between 1992 and 1993. The figures for cocaine emphasize the earlier comments regarding increased trafficking in Africa and the Middle East (in both cases the aggregate amounts are still small). Even a limited relative drop in the size of seizures in America is enough to offset whatever

gains in sales were achieved elsewhere. On the plausible assumption that prices, whether wholesale or retail, tend to be higher in the OECD countries than in other regions, the estimates suggest that the total value of exports may be somewhat lower in the mid-1990s than they were around the beginning of the decade.

Table 2. World seizures of cannabis resin, cocaine and heroin, 1975-1993
(Kilograms)

Period or year	Cannabis resin	Cocaine	Heroin
	A. Averages		
1975-1979	121 474	4 512	2 236
1980-1984	254 660	26 788	7 361
1985-1989	437 001	162 448	19 013
	B. Totals		
1990	640 924	288 883	23 359
1991	889 770	321 947	21 423
1992	662 313	274 627	25 003
1993	857 897	264 233	26 693

Sources: UNDCP annual reports questionnaire, part III, and other official sources.

Table 3. Number of countries reporting seizures,
1990 and 1993

	Drug seized and number of reporting countries		
Year	Cannabis resin	Cocaine	Heroin
1990	65	86	86
1993	70	96	101

Note: A country is regarded as having seized drugs when such information is either reported to UNDCP in the annual reports questionnaire or made available to another recognized international or national institution.

Table 4. Number of countries reporting seizures, by region, 1990 and 1993

Year	Drug seized and number of reporting countries		
	Cannabis resin	Cocaine	Heroin
	A. Africa		
1990	4	13	22
1993	7	17	21
	B. America		
1990	9	35	5
1993	8	32	12
	C. Europe		
1990	27	22	28
1993	35	34	34
	D. Near and Middle East		
1990	15	8	14
1993	12	6	15
	E. Asia		
1990	7	6	15
1993	6	5	17
	F. Oceania		
1990	3	2	2
1993	2	2	2

34. On the basis of the reported seizures, and keeping in mind the comments made in section I of the present report, a broad estimate of world imports of cocaine may now be made.

35. Data from the United States suggest that interception rates by United States law enforcement authorities may be equivalent to between 24 and 39 per cent of actual imports into the United States. If the higher of the two rates is used as a basis for computation, then it would follow (see the second column of the cocaine segment of table 5) that the likely total cocaine imports into the United States in 1993 were of the order of 625 tonnes. That figure would thus represent the lower limit for cocaine imports into the United States.

36. It seems reasonably safe to say that other regions of the world do not have an effective seizure rate in excess of the higher figure (39 per cent) suggested for the United States. If, therefore, the rate of 39 per cent is applied to the global total of cocaine seizures shown in the second column of table 5, then the estimate of world imports would be approximately 661 tonnes.

Table 5. Drug seizures worldwide, by weight, 1992-1993

Region [a]	1992 (tonnes)	1993 (tonnes)	Percentage change
	A. Cannabis resin		
America	17.116	74.246	333.78
Africa	65.946	107.456	62.95
Europe	347.361	436.812	25.75
Asia	7.660	8.785	14.69
Near and Middle East	217.148	224.712	3.48
Oceania	7.082	0.322	-95.45
Total	662.313	852.333	28.69
	B. Cocaine		
Africa	0.483	1.441	198.34
Near and Middle East	0.225	0.323	43.56
Europe	18.180	18.633	2.49
America	255.380	245.470	-3.80
Asia	0.119	0.082	-31.09
Oceania	0.240	0.080	-66.67
Total	274.627	266.029	-3.13
	C. Heroin		
Africa	0.222	0.373	68.02
Europe	7.345	8.769	19.39
America	1.541	1.733	12.46
Asia	8.104	9.085	12.11
Oceania	0.115	0.116	0.87
Near and Middle East	7.676	6.768	-11.83
Total	25.003	26.844	7.36
	D. Opium		
Europe	0.148	1.474	895.95
America	0.877	1.965	124.06
Near and Middle East	41.823	68.876	64.68
Asia	9.906	13.264	33.90
Africa	0.033	0.000	-100.00
Oceania	0.052	0.000	-100.00
Total	52.839	85.579	61.96

Sources: UNDCP annual reports questionnaire, part III, and other official sources.

[a] Ranked according to percentage change.

37. As noted in the introduction, interdiction rates may well vary considerably over quite short periods of time in response to concerted efforts at improving the efficiency of law enforcement operations. Detailed data in a quantitative form which can be used for statistical analysis is unfortunately not readily available. If the same estimate of 39 per cent used above is applied to the 1990 figure of world seizures of cocaine (see table 2), then the global size of imports for 1990 could be estimated at approximately 720 tonnes. The 1991 figure would have been considerably higher at 800 tonnes.

38. The above-mentioned figures are most probably a conservative estimate of illicit imports of cocaine worldwide. The higher interdiction rate for the United States was chosen and applied to establish global estimates. The reported seizures may well be a very incomplete record of all seizures actually made. Both factors would tend to drive down the estimated figures for trafficking. On the other hand, it is possible that interdiction rates do improve over time, in which case the calculated volume of world trafficking would be lower. On balance, however, it seems reasonable to treat the figures given above as lower limits for the actual scale of trafficking.

39. A computation of the probable minimum value of world trafficking in cocaine can be made for 1992, drawing on available price data for the United States and Europe. The assumptions made in the calculation are as follows. First, using the drug seizure data by region for 1992 given in table 5, the total volume of imports by region is calculated using the interception rate of 39 per cent (that is, the upper limit indicated by the Drug Enforcement Administration of the United States). Secondly, the landed price of imports is taken to be the lower limit of the wholesale prices for the United States and the average of the minimum wholesale prices recorded for 11 countries in western Europe (in both cases, the figures are taken from data provided in the annual reports questionnaires). The figures for 1992 were 11,000 United States dollars (US $) per kilogram for the United States, and $47,000 per kilogram in Europe. Thirdly, the price data are applied to the figures for Europe and America given in table 5.

40. On the assumptions outlined, the 1992 value of cocaine imports into America would have been approximately $7.205 billion,* and imports into Europe $2.256 billion. If the price in the United States, as the lower of the two, is used for the small volume (5 tonnes) of imports for the rest of the world, then the value of such imports would have been $55 million.

41. On an aggregate basis, therefore, world imports of cocaine in 1992 would have been approximately $9.5 billion. That estimate is, to repeat, a very conservative figure, in so far as it relies on an extremely high interception rate, as well as on estimates of the landed price of imports which are almost certainly too low. The sensitivity of the aggregate figure is greatest in respect of variations in the assumed effective interception rate for America. To illustrate, if the lower Drug Enforcement Administration figure of 24 per cent had been used, then the import figure for the United States would have risen to approximately 1,030 tonnes, and the value of imports to America would have reached $11.3 billion. Global imports, computed on the basis of the 24 per cent interception rate, would have risen to approximately $14.5 billion.

42. Unfortunately, the current information does not permit a similar hypothetical calculation to be made for 1993, since the equivalent price data are not available. The reported information on seizures shows a drop of approximately 4 per cent worldwide from 1992 to 1993. If the interception rate has not shown much variation during the same period, then the implication is that the volume of world imports has fallen, but by a small amount. The factor that could appreciably influence import prices seems to be changes in the degree of purity of the product. If purity were increasing, unit prices would tend to rise. It is, however, very difficult to attach a quantitative estimate to specific improvements in purity. Overall,

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*1 billion = 1,000 million.

therefore, it may be safest to suggest that the likely value of world trafficking in cocaine in 1993 has not varied significantly from the figure for the previous year.

III. HEROIN

A. Production

43. Production of illicit opiates (see table 6) is concentrated in two major geographical areas, namely the Golden Triangle of South-East Asia (Myanmar, Lao People's Democratic Republic and Thailand) and the Golden Crescent of South-West Asia (Afghanistan, Pakistan and Iran (Islamic Republic of)). Estimates of opium production in those two areas vary by enormous margins. Thus, using 1992 data, the upper estimate for South-West Asia is approximately four times larger than lower estimates, while for South-East Asia the ratio of the higher to the lower figure is of the order of 3 to 1. Even if, for each region, the lower estimates were to be used, the combined opium production of the two regions would still account for 94 per cent of world output. A minor contribution to the total is made by two Latin American States, Colombia and Mexico, and five central Asian States, Tajikistan, Uzbekistan, Turkmenistan, Kyrgyzstan and Kazakhstan.

Table 6. Main sources of opium and heroin production, by country, 1990-1993

Country and total	Net opium cultivation (hectares)	Potential opium yield (tonnes)	Potential heroin production (tonnes)	Average poppy yield per hectare (kilograms)
Afghanistan				
1990	12 375	415	42	34
1991	17 190	570	57	33
1992	19 470	640	64	33
1993	21 080	685	69	32
Colombia				
1990	-	-	-	-
1991	1 160	27	2[a]	23
1992	20 000	20	2	1
1993	20 000	20	2	1
Guatemala				
1990	845	13	1	15
1991	1 145	17	1	15

continued

Table 6 (continued)

Country and total	Net opium cultivation (hectares)	Potential opium yield (tonnes)	Potential heroin production (tonnes)	Average poppy yield per hectare (kilograms)
1992	730	-	-	-
1993	438	4	0.3[a/]	9
Lao People's Democratic Republic				
1990	30 580	275	23	9
1991	29 625	265	22	9
1992	25 610	230	19	9
1993	26 040	180	15	7
Lebanon				
1990	3 200	32	3[a/]	10
1991	3 400	34	3[a/]	10
1992	-	-	-	-
1993	440	4	0.3[a/]	9
Mexico				
1990	5 450	62	6	11
1991	3 765	41	4	11
1992	3 310	40	4	12
1993	3 960	49	5	12
Myanmar				
1990	150 100	2 255	188	15
1991	160 000	2 350	196	15
1992	153 700	2 280	190	15
1993	165 800	2 575	215	16
Pakistan				
1990	8 030	165	16	21
1991	8 205	180	18	22

continued

Table 6 (continued)

Country and total	Net opium cultivation (hectares)	Potential opium yield (tonnes)	Potential heroin production (tonnes)	Average poppy yield per hectare (kilograms)
1992	8 170	175	18	21
1993	6 280	140	14	22
Thailand				
1990	3 435	40	3	12
1991	3 000	35	3	12
1992	2 050	24	2	12
1993	2 880	42	4	15
Total production				
1990	-	3 257	282	-
1991	-	3 519	306	-
1992	-	3 409	299	-
1993	-	3 699	324	-

Sources: Bureau of International Narcotics Matters, International Narcotics Control Strategy Report (Washington, D.C., Department of State, 1993 and 1994)

[a]/Calculated using a conversion factor of 8.33 per cent.

44. As with cocaine, the manufacture of heroin utilizes relatively simple technology, with precursor chemicals that are inexpensive and normally easy to obtain. The processing sites are often located in fairly inaccessible areas close to national frontiers. That permits close links between raw material producers in one country and processors in another.

45. A conservative estimate of illicit opium production in 1993, drawing upon figures published by the United States Department of State, situates the global figure at approximately 3,700 tonnes. That represents roughly a 7 per cent increase over 1990, and is identical to the previous highest output figure ever recorded (in 1989). Other calculations place the aggregate figure considerably higher.

46. Coefficients for transformation of opium into heroin vary according to the technology used, with the normal range being between 8 and 10 kilograms of opium for 1 kilogram of heroin. On the assumption that a relatively efficient transformation rate of 8.33 is on average obtained, then 1993 heroin production would be approximately 340 tonnes. The quality of heroin, measured by average purity, sold at retail levels in Europe has steadily increased over the past decade. From a figure of about 7 per cent in the mid-1980s, the current purity level is close to 40 per cent. That implies that not only is supply greater in quantitative terms, it is also of greater quality than ever before.

B. Patterns of trafficking

47. Figure II demonstrates that trafficking routes for opiates are spread widely across the globe. That is due not only to the existence of more than one main producing area, but also to the fact that markets have been developed in most regions of the world except South America. A comparison of figure II with the earlier map of cocaine trafficking routes underlines the extent to which heroin has penetrated consumption markets outside OECD countries, as well as reaching broader coverage within the higher-income zones. Moreover, figure II suggests that more indirect and complex routes may exist for heroin than is the case for cocaine.

48. As with cocaine, data on internationally significant seizures of heroin reported by a number of countries are also available (the definition of such a seizure is the same for heroin as for cocaine). The same checks were made on the data. They indicated that in 1990, 30 countries provided individual seizure data covering 255 places of entry. The 1993 estimates were 40 countries and 365 entry points. Caveats similar to those for cocaine apply to the data. However, it is possible to suggest the likely minimum number of entry points.

49. Given that 56 and 59 countries did not provide individual seizure data in, respectively, 1990 and 1993, yet did respond to the annual reports questionnaire, the figures for entry points have to be increased by at least these numbers in the two years. Making allowances for the lack of specific port information from some key respondent countries, a conservative estimate of the actual numbers of entry points could be 350 in 1990 and about 500 in 1993. That estimate is almost certainly well below the real figure, since the variety and complexity of trafficking routes for cocaine is, as noted earlier, well in excess of the number for heroin.

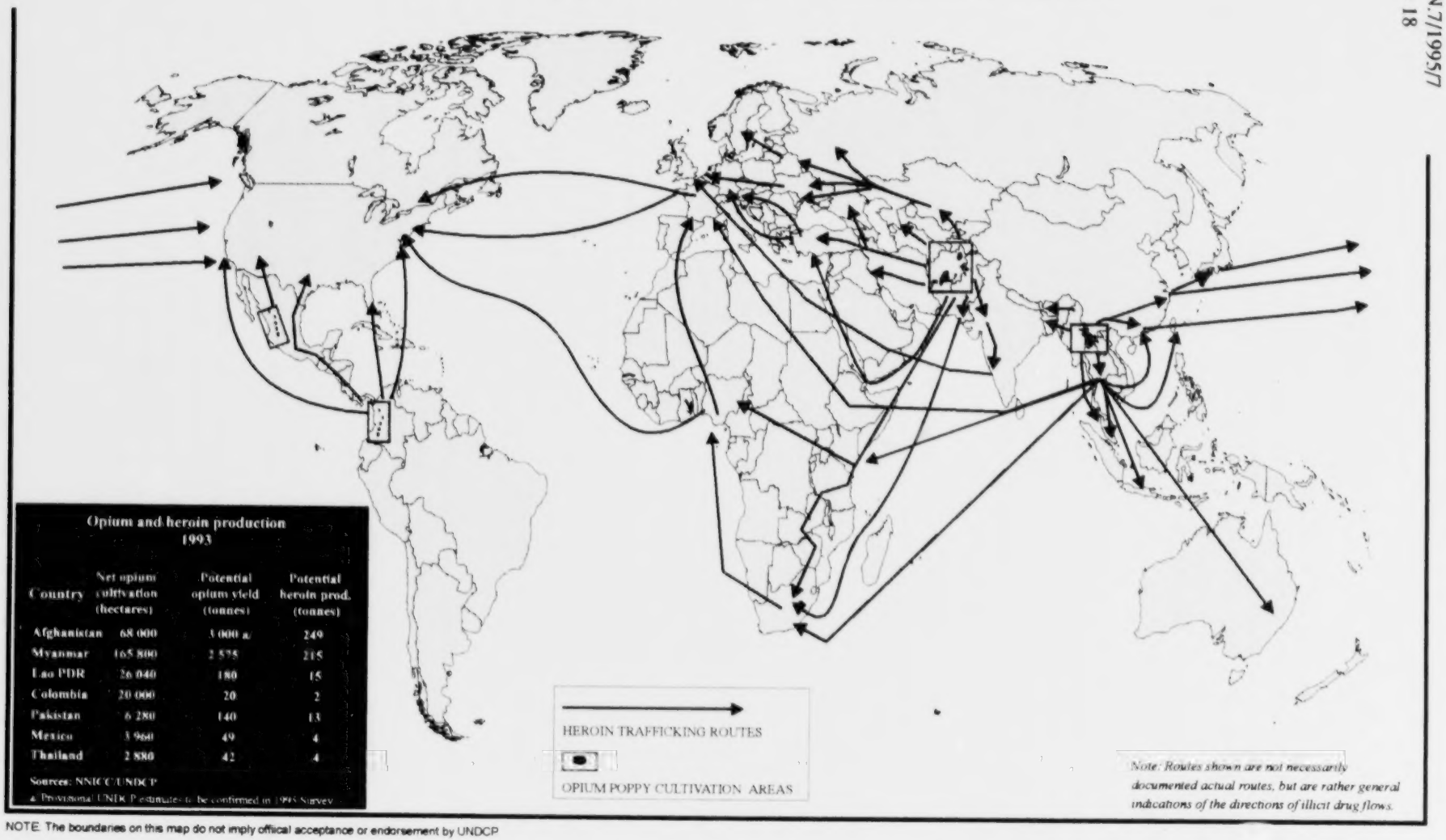
50. The figure does not permit any strong statements to be made regarding the relative significance of the multiple routes shown; rather, the emphasis is on the diversity and flexibility of trafficking operations. A few examples of recent findings, however, may reflect the state of current trafficking.

51. For South-East Asian heroin, it would appear that most of the exports originate from Myanmar, with smaller shares coming from China, the Lao People's Democratic Republic and Thailand. Consumption within the countries producing and processing the raw material is apparently fairly low, leaving most of the product for export. Ethnic Chinese groups seem to control the export trafficking, and are vertically integrated with the distribution networks in major cities of the United States. The traffic across the Pacific seems to make extensive use of China, Hong Kong, Tawain Province of China and Thailand.

52. Although the United States market is by far the most important single sales area for heroin from the Golden Triangle, consumption in Australia appears to be on the increase. The routes of commerce run through Malaysia, Singapore, Philippines and Indonesia. There is some evidence that fishing trawlers from Thailand are transporting part of the product, and that, in a mix of traditional and modern technologies, some heroin is passing through the container port of Singapore.

53. The rapid expansion of trafficking in the east Asian zone has undoubtedly contributed to the proliferation of methods of trafficking. African groups, in particular from Nigeria, now participate actively in the operations, and act as conduits for sales in both western Europe and the United States. In addition, the same traders are opening up markets in South Africa and neighbouring countries. In a further development that reinforces the tough competitive situation in the heroin market, some reports indicate that ethnic Chinese syndicates are seeking to wrest control of part of the European market from Turkish traffickers. The principal competitive instrument is the higher-grade heroin that the ethnic Chinese groups can market, an advantage strengthened by the links between those groups and ethnic Chinese populations established in Europe.

Figure II. Opium poppy and heroin: Major cultivation areas and trafficking routes


Opium and heroin production
1993
Country | Net opium cultivation (hectares) | Potential opium yield (tonnes) | Potential heroin prod. (tonnes)
Afghanistan | 68 000 | 3 000 a/ | 249
Myanmar | 165 800 | 2 575 | 215
Lao PDR | 26 040 | 180 | 15
Colombia | 20 000 | 20 | 2
Pakistan | 6 280 | 140 | 13
Mexico | 3 960 | 49 | 4
Thailand | 2 880 | 42 | 4
Sources: NNICC/UNDCP
a/ Provisional UNDCP estimates to be confirmed in 1995 Survey
HEROIN TRAFFICKING ROUTES
OPIUM POPPY CULTIVATION AREAS
Note: Routes shown are not necessarily documented actual routes, but are rather general indications of the directions of illicit drug flows.

NOTE: The boundaries on this map do not imply official acceptance or endorsement by UNDCP

54. South-West Asian heroin has traditionally been the source for traffic along the Balkan route. Caution is required in estimating actual traffic because substantial domestic consumption occurs along the route. For instance, in Pakistan, the source of the bulk of the traffic, it is estimated that perhaps only 10 to 15 per cent of production is exported. The percentages depend on the estimates used for opium production in Afghanistan, which show considerable variation according to the survey methods employed. It appears that the well-established routes into Europe, using the Islamic Republic of Iran and Turkey as transit countries, continue to account for a large share of traffic. Heroin laboratories have existed in Turkey for some years, where heroin processing is thus taking place. Given that the sale prices in export markets are far higher for heroin than for morphine base, it seems to be sound economic sense for the traffickers to process as much as possible in Turkey. Seizure data indeed also indicate that important quantities of morphine base have been discovered in Turkey and the Islamic Republic of Iran.

55. The political upheavals in the countries close to the production areas and the Balkan route have contributed to a number of recent variations occurring in respect of the traditional trading pattern.

56. Disruptions in the former Yugoslavia, allied with the political changes elsewhere in central Europe, have led traffickers to shift heroin more through Hungary, the Czech Republic and Slovakia, than was previously the case. The seizure numbers for Hungary are particularly striking: from 74 kilograms in 1992, seizures rose to 422 kilograms in 1993, and in the first four months alone of 1994 they reached 523 kilograms.

57. The collapse of the former Union of Soviet Socialist Republics (USSR) has provided fresh trading possibilities from South-West Asia, through the member States of the Commonwealth of Independent States in central Asia, and on into the Russian Federation and eastern Europe. The new States have an extremely limited capability to protect their borders, and are in effect wide open to illicit traffic. It is estimated by law enforcement agencies that roughly 10 per cent of the traditional Balkan route traffic now goes through central Asia. The region is also an opium producer in its own right. As yet there is no evidence of any capability to process opium into morphine base or heroin, yet the natural conditions as well as ethnic ties to groups in Afghanistan and Pakistan imply that the options could be there.

C. Seizures and the volume of trafficking

58. Table 2 above shows that heroin seizures reached close to 27 tonnes in 1993, an increase of almost 7 per cent over the preceding year. The number of countries reporting seizures increased by about 15 per cent, with the rise being sharpest in America, where 11 countries reported seizures in 1993, as against only 5 in 1990. Measured by weight, the largest seizures continue to occur in Europe and Asia, which in 1993 together accounted for two thirds of reported global seizures. In percentage terms, the sharpest increase in weight has been in Africa.

59. Heroin interdiction rates appear to be much smaller than those for cocaine. Information for the United Kingdom of Great Britain and Northern Ireland suggests that the upper limit for interception, adding together customs and police efforts, would be approximately 11 per cent. If that figure is used as a global guide, then illicit world heroin trafficking in 1993 would have been of the order of 240 tonnes.

60. It is possible to arrive at a minimum estimate for the value of world trafficking in heroin for 1992, using procedures similar to those employed earlier in the present report in order to estimate cocaine trafficking. Once again, the minimum wholesale prices were taken as a proxy for landed price of imports. Those prices vary considerably across the four main consuming regions, that is, America, Europe, the Near and Middle East and Asia. The calculations suggest that the orders of magnitude for import values in those four regions are: America, $0.7 billion; Europe, $2.5 billion; Near and Middle East, $2.1 billion;

and Asia, $1.5 billion. Taking those numbers together yields an approximate value for heroin trafficking in 1992 of $6.8 billion. Any shift away from the extremely conservative consumption used to estimate both volumes and prices would imply sharp increases in the value of world trafficking.

IV. CANNABIS

A. Production

61. There are several significant differences between cannabis, on the one hand, and opiates and cocaine, on the other. First, though the number of countries reported as producing cannabis herb is not particularly large (probably not in excess of 20), the ratio of domestic consumption to output is very high for most of them. That implies that few countries are engaged in international illicit trafficking. Although the volume (that is, weight) of international trafficking in cannabis is considerably larger than that for other narcotic drugs, both the value of international illicit trafficking and the ratio of volume to global production are smaller than for the other narcotic drugs. Secondly, while the cannabis herb yields marijuana, and cannabis resin is also known as hashish, little significant processing is needed before the products reach consumers. Hence, there is neither a precursor issue nor any question of controlling processing facilities. Thirdly, the diversity of producers, the limited extent of international trafficking relative to output and the relatively low returns from cannabis trafficking have combined to create a structure in which a wide range of groups are engaged in marketing.

62. Table 7 provides a summary of the available information on hectares devoted to illicit cannabis cultivation, along with the estimated yields (where available) of marijuana and hashish. In Kazakhstan, cannabis grows wild. Significant figures for cultivation are found in Morocco, Mexico and South Africa. In terms of yields, these three countries account for close to three fourths of reported world output of marijuana, excluding North America. For Morocco, a significant part of output consists of cannabis resin. Although the available information on hashish yields is very limited, the figures in table 7 suggest that approximately one half is produced in Lebanon, with most of the remainder in Afghanistan and Pakistan. No national survey appears to be available regarding cannabis production in North America; the figure given in the table was taken from an official source.

63. There is evidence of production on a very minor scale using hydroponic technology. The technique is employed in the Netherlands and to some extent in the United States and Canada. Despite the minimum levels of production at present, the potential importance of such output is that it has a tetrahydrocannabinol (THC) content of up to 20 per cent (in some cases even higher percentages have been indicated), compared with the usual 1 to 10 per cent for cannabis cultivated outdoors. Furthermore, that method permits up to four full growth cycles per year, thereby expanding yield from a single production site. It is possible that the high quality cannabis will obtain a rapidly growing share of the European market. There are already some indications that the technology is being diffused to other countries, with start-up assistance from experienced producers.

B. Patterns of trafficking

64. The seizure information for cannabis resin is summarized in the relevant columns of tables 2, 3, 4 and 5. At present, aggregate seizures are nearly double the annual averages recorded in the second half of the 1980s, but have fluctuated sharply during the present decade. The number of countries reporting seizures is 71, of which one half are in Europe and 16 per cent in the Near and Middle East. In comparison with 1992, seizures have risen fastest in America, with a substantial increase also recorded for Africa.

Table 7. Estimated cannabis production, 1990-1993[a]

Country	1990			1991			1992			1993		
	Cannabis cultivation (hectares)	Marijuana yield (tonnes)	Hashish yield (tonnes)	Cannabis cultivation (hectares)	Marijuana yield (tonnes)	Hashish yield (tonnes)	Cannabis cultivation (hectares)	Marijuana yield (tonnes)	Hashish yield (tonnes)	Cannabis cultivation (hectares)	Marijuana yield (tonnes)	Hashish yield (tonnes)
Afghanistan	..	..	300[b]	..	..	300[b]	..	..	300[b]	..	..	300[b]
Australia	..	..	..	..	..	..	..	71	..	..	71[c]	..
Belize	22	60[b]	..	54[b]	49[b]	..	54[b]	50[b]	..	49[b]	49[b]	..
Colombia	10 000	..	..	..	..	..	5 937	..	..	138	..	..
	1 500[b]	1 500[b]	..	2 000[b]	1 500[b]	..	2 000[b]	1 625[b]	..	5 000[b]	4 125[b]	..
India	..	..	..	..	..	..	494	340	..	494[c]	340[c]	..
Jamaica	1 540	..	..	..	..	..	..	..	..	..	..	..
	1 220[b]	825[b]	..	950[b]	641[c]	..	389[b]	263[b]	..	744[b]	502[b]	..
Kazakhstan[d]	-	..	..	-	..	..	138 000	5 000	..	170 000	5 000[c]	..
Lebanon	9 000	..	..	9 000[c]	..	..	9 000[c]	..	..	9 000[c]	..	..
	..	..	100[b]	..	..	545[b]	..	..	565[c]	..	..	565[b]
Mexico	4 374	3 499	..	12 702	..	..	16 871	13 497	..	16 645	13 316	..
	35 050[b]	19 715[b]	..	17 915[b]	7 775[b]	..	16 420[b]	7 795[b]	..	11 220[b]	6 280[b]	..
Morocco	27 400	12 247	85[b]	..	15 000	85[b]	50 000	15 000[c]	85[b]	50 000	15 000[c]	85[b]
Pakistan	..	..	200[b]	..	..	200[b]	..	..	200[b]	..	..	200[b]
South Africa	..	..	..	..	..	..	6 000	12 700	..	5 000	12 700[c]	..
Sri Lanka	200	140[c]	..	200[c]	140[c]	..	200	140	..	49	140[c]	..
Thailand	128	160	..	..	500	..	100	70	..	100[c]	70[c]	..
United States	..	6 000	..	..	7 000	..	..	6 500	..	..	6 500	..
Total[e]	..	24 431	685	..	32 605	1 130	..	55 256	1 150		57 813	1 150

Sources: UNDCP; Bureau of International Narcotics Matters, International Narcotics Control Strategy Report (Washington, D.C., Department of State, 1994); and National Narcotics Intelligence Consumers Committee, The NNICC Report 1994 (Washington, D.C., Drug Enforcement Administration, 1994).

Notes: Two dots (..) indicate that data are not available. A hyphen (-) indicates that the item is not applicable. Figures derived from non-UNDCP sources are indicated.

[a] Cannabis herb - marijuana; cannabis resin - hashish.

[b] Non-UNDCP data source.

[c] Based on estimates for the previous year.

[d] Wild-grown cannabis

[e] If more than one estimate is available, priority is given to the UNDCP sources for aggregate figures.

C. Seizures and the volume of trafficking

65. The information on seizure rates with regard to cannabis is very limited. A conservative estimate of the volume of trafficking would therefore depend on assuming a high seizure rate across the globe, and then making the relevant calculation (as with cocaine and heroin, the higher the interception rate, the lower the implied volume of trafficking). If a figure of 30 per cent is applied, then the volume of trafficking would be approximately 2,860 tonnes.

V. PSYCHOTROPIC SUBSTANCES

A. Production

66. The manufacture of psychotropic substances is usually dependent on the existence of a reasonably eveloped chemical industry within a country, although a certain number of such substances are made even in areas where the chemical industry is not particularly sophisticated.

67. The variety of substances and the range of producing countries significantly complicate any attempt to put numbers to levels of production in the world. What can be said is that the OECD countries, along with the more industrialized countries elsewhere, provide the bulk of output, and that the output covers a wide range of substances.

B. Patterns of trafficking

68. The above-mentioned data limitations imply that it is very difficult to offer any sharp statistical picture of trafficking. A few general observations can, however, be made. First, most of trafficking by value is almost certainly exported from and imported by leading OECD countries. Secondly, those countries supply a certain number of substances to developing countries and economies in transition. Thirdly, some of those economies and particularly some of the developing countries have appreciable amounts of trafficking among themselves. In short, trafficking patterns at present are probably fairly fragmented, with the main single element being intra-OECD trafficking.

69. Seizure information for psychotropic substances is particularly difficult to interpret because, among other reasons, many countries do not distinguish between drugs with similar characteristics. Instead, classifications tend to be very broad and to involve the use of general categories such as "depressants" or "stimulants". There are, in addition, severe inadequacies with regard to detection and reporting of illicit trafficking. The best that can be done at present is to offer a few examples of the growing difficulties in relation to psychotropic substances.

70. Abuse of psychotropic substances is a subject of increasing concern in Asia. Seizures of amphetamine and methamphetamine in Malaysia, Philippines, the Republic of Korea and Thailand seem to be on a sharp upward path. In 1993, seizures of amphetamine in Thailand alone amounted to 396 kilograms, a figure second only to that for the United Kingdom (995 kilograms). For methamphetamine, the United States reported the largest quantity captured, but Japan and the Republic of Korea were the next largest countries for seizures of that drug. The likely extent of the problems in Asia is illustrated by the fact that clandestine laboratories have been reported in Australia, Philippines and Thailand, in addition to the processing centres established earlier in Taiwan Province of China and some other countries.

71. In Africa, the availability of psychotropic substances appears to be on the increase. Supply is mostly through the diversion of licit imports from Europe and Asia, although clandestine laboratories for the manufacture of methaqualone have been discovered in South Africa and neighbouring countries. The seizure statistics suggest that supply often consists of the diversion of amphetamine-type medicaments, with part of the supply apparently originating in eastern Europe.

72. The statistical limitations preclude a serious attempt to estimate either the total volume or value of international trafficking. While it is certainly much smaller than cocaine and heroin, the share of such substances in world trafficking is on the increase. As the chemical industry grows in geographical spread and technological sophistication, the prospect of an ever greater supply of psychotropic substances through diversion from licit channels will increase.

VI. CONCLUSIONS

73. The review of statistical and qualitative information offered in the present report suggests the following principal conclusions:

(a) The processes of political and economic change set in motion by the breakup of the former USSR and the drive to liberalize the international economy and domestic economic transactions have significantly increased both the magnitude and complexity of illicit drug trafficking;

(b) Consumption of a growing variety of drugs has begun to increase in a number of developing countries and economies in transition. The growth is in several cases aided by the spread of trafficking routes;

(c) Although the control of one major cocaine cartel appears to have been broken, that has not made a significant impact on illicit trafficking in cocaine;

(d) The number of recorded seizures of both opium and cannabis resin has risen sharply, while that of cocaine has shown a small decline. There appears to be fairly strong evidence to suggest that illicit trafficking in cocaine is, at least as far as OECD imports are concerned, currently fairly stagnant. A push towards the opening of new markets, particularly in Africa and the Near and Middle East is now taking place;

(e) Using highly conservative methods, the 1992 value of world imports of cocaine was estimated to be of the order of $9.5 billion, and heroin imports approximately $6.8 billion. If data for cannabis and psychotropic substances could be included, and still retaining conservative assumptions, then the 1992 figure for global trafficking in the main drugs could probably be reckoned as close to $20 billion. If less conservative assumptions for volume and price were used, that figure would rise by at least a factor of 3, driving up the estimated value of trafficking to $60 billion. When account is taken of the major escalations in price from the wholesale to the retail level, then the street value of illicit drug trafficking in 1992 certainly reached at least $300 billion;

(f) The market impact of chemically manufactured drugs is most likely to increase rapidly in the next few years. There may be a gradual shift, especially in OECD countries, to synthetic drugs from the drugs traditionally involved in the illicit traffic, that is, those based on the processing of raw materials.